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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,375	11/19/2001	Chun-Hsing Hsieh	82339	8360

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EXAMINER	
LAM, HUNG H	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/988,375	HSIEH ET AL.
	Examiner	Art Unit
	Hung H. Lam	2615

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-19* is/are rejected.

7)☒ Claim(s) *10 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3,5-7,11-13,15-17 are rejected under 35 U.S.C. 103(e), as being unpatentable over Lee et al. (US-6,122,319) in view of Chen et al. (US-6,301,385).

Regarding claim 1, Lee et al. disclose a method of detecting motion for digital camera, which comprises the steps of:

storing gray level values (col. 4, lines 45-49) of a specific group (Figs. 3-5) in a first image (220, Fig. 2; col. 3, line 29 - col. 4, line 30); capturing real-time gray level values (col. 4, lines 53-56) corresponding to said specific group (Figs. 3-5) in a real-time image (210, Fig. 2);

comparing said real-time gray level values (230, col. 4, lines 54-60) of said specific group (Figs. 3-5) in said real-time image (210, Fig. 2) with said gray level values of said specific group (Figs. 3-5) in said first image (220, Fig. 2); and

storing said real-time gray level values (col. 4, lines 53-56) of said specific group in said real-time image (210, Fig. 2) as said gray level values of said specific group in said first image (220, col. 4, lines 45-52).

Claim 1 differs from Lee et al. in that the claim further requires the steps of: determining whether gray level differences between said specific groups in said real-time image and said first image are greater than a predetermined threshold value, wherein said gray level differences greater than said threshold value indicate an object of said real-time image is in motion or else no motion is occurring in the real-time image; performing a sequential step for the object detected to be in motion when said gray level value differences are greater than said threshold value. However, the limitations are well known in the art as taught by Chen.

In the same field of endeavor, Chen et al. disclose a motion detection technique using a subtraction method (col. 5, lines 33-38). Chen further teaches that if the pixel differences are greater than a threshold T, an object in the current image is in motion or else no motion is occurring in the current image (col. 5, lines 36-50). Chen further

shows a step of forming a motion map indicating the pixels that are in motion and those that are not (col. 5, lines 51-55). In light of the teaching from Chen, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the motion detecting apparatus of Lee as claimed. The modification thus provides a motion segmenting map indicating the pixels that are part of the foreground and background (col. 2, lines 56-67; col. 5, line 51-54; col. 8, lines 9-17).

Regarding claim 2, Lee et al. and Chen et al. disclose a method as recited in the rejection of claim 1. Lee et al. teach the method wherein said specific group (motion detection areas 1-4, Fig. 3) substantially includes one or a plurality of specific points (see gradient pattern in Fig. 4) selected from said images.

Regarding claim 3, Lee et al. disclose the method wherein said specific points (see gradient pattern in Fig. 5) are uniformly distributed over entire image (see Fig. 3; since each motion detection areas 1-4 has its own gradient patent, it is inherent that the patterns are uniformly distribute over entire image).

Regarding claim 5, Lee et al. disclose the method wherein an amount of said specific points (Fig. 6) is adjustable depending on the detecting efficiency (col. 4, lines 30-44).

Regarding claim 6, Lee et al. and Chen et al. disclose a method as recited in rejection of claim 1, which further comprises:

subtracting said grey level values (Chen, col. 5, lines 30-35; col. 5, line 55 - col. 6, line 3) of said specific group in said first image (Chen, image i, Fig. 6; col. 5, lines 27-38). from said real-time gray level values (Chen, image i+1, Fig. 6) of said specific group in said real-time image to generate a plurality of gray level differences (Chen, col. 5, lines 38-41; pixels represent an object in motion therefore, generate much more gray level) of said corresponding specific groups; and

determining whether said gray level differences (Chen, col. 5, lines 35-40) are greater than said predetermined threshold value (Chen, col. 5, lines 45-44);

wherein any one of said gray level differences (Chen, col. 5, lines 35-40) being greater than said predetermined threshold value (Chen, col. 6, lines 11-12) indicates the object of said real-time image is in motion (Chen, col. 5, lines 40-45).

Regarding claim 7, Lee et al. and Chen et al. disclose a method as recited in the rejection of claim 6. Lee further teaches that said threshold value is adjustable for changing a detection sensitivity (see Lee Figs. 5-6, col. 4, line 37-45) of the digital camera.

Regarding claim 11, Lee et al. disclose a method of detecting motion for digital camera, which comprises the steps of:

storing gray level values (col. 4, lines 45-49) of a specific group (motion detection areas 1-4, Fig. 3) in a first image (220, Fig. 2, col. 3, line 29 - col. 4, line 30) ;

capturing real-time gray level values (col. 4, lines 53-56) corresponding to said specific group (motion detection areas 1-4, Fig. 3) in a real-time image (210, Fig. 2);

comparing said real-time gray level values (230, col. 4, lines 54-60) of said specific group (Figs. 3-5) in said real-time image (210, Fig. 2) with said gray level values of said specific group (Figs. 3-5) in said first image (220, Fig. 2); and

storing said real-time gray level values (col. 4, lines 53-56) of said specific group in said real-time image (210, Fig. 2) as said gray level values of said specific group in said first image (220, col. 4, lines 45-52).

Claim 11 differs from Lee et al. in that the claim further requires the steps of: determining whether an amount of specific points with different gray levels between said specific groups in said real-time image and said first image is greater than N, wherein the amount of specific points with different gray levels greater than N indicates an object of said real-time image is in motion or else no motion in the real-time image; performing a sequential step for the object detected to be in motion when the amount of specific points with different gray levels is greater than N. However, the limitations are well known in the art as taught by Chen.

In the same field of endeavor, Chen et al. disclose a motion detection technique using a subtraction method (col. 5, lines 33-38). Chen further teaches that if the pixel differences are greater than a threshold T, which is equaled to N in claim 11, an object in the current image is in motion or else no motion is occurring in the current image (col. 5,

lines 36-50). Chen further shows a step of forming a motion map indicating the pixels that are in motion and those that are not (col. 5, lines 51-55). In light of the teaching from Chen, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the motion detecting apparatus of Lee as claimed. The modification thus provides a motion map segmenting map indicating the pixels that are part of the foreground and background (col. 2, lines 56-67; col. 5, line 51-54; col. 8, lines 9-17).

Regarding claim 12, Lee et al. and Chen et al. disclose a method as recited in rejection of claim 11. Lee et al. teach the method wherein said specific group (motion detection areas 1-4, Fig. 3) substantially includes one or a plurality of said specific points (see gradient pattern in Fig. 4) selected from said images (motion detection area, Fig. 3).

Regarding claim 13, see the rejection of claim 3 above.

Regarding claim 15, Lee et al. disclose the method wherein an amount of said specific points (Fig. 6) is adjustable depending on the detection efficiency (col. 4, lines 30-40).

Regarding claim 16, Lee et al. and Chen et al. disclose a method as recited in rejection of claim 11, which further comprises:

subtracting said gray level values (Chen, col. 5, lines 30-35; col. 5, line 55 - col. 6, line 3) of said specific group in said first image (Chen, image i, Fig. 6; col. 5, lines 27-38); from said real-time gray level values (Chen, image i+1, Fig. 6) of said specific group in said real-time image to generate a plurality of gray level differences (Chen, col. 5, lines 38-41; pixels represent an object in motion therefore, generate much more gray levels) of said corresponding specific groups; and

determining whether an amount of said gray level differences (Chen, col. 5, lines 35-40) unequal to zero is greater than N (N in claimed invention is equal to T in Chen, col. 6, lines 11-12); wherein the amount of said gray level differences (Chen, col. 5, lines 35-40) unequal to zero being greater than N indicates the object of said real-time image is in motion (Chen, col. 5, lines 40-45).

Regarding claim 17, Lee et al. and Chen et al. disclose a method as recited in rejection of claim 16. Lee et al. teach the method wherein N (N is the number of pixels in Figs. 5-6) value is adjustable for changing a detection sensitivity (see Lee Figs. 5-6, col. 4, line 37-45) of the digital camera.

5. Claims 4 and 14 are rejected under 35 U.S.C. 103(e) as being unpatentable over Lee et al. in view of Chen et al. and further in view of Sekine et al. (US-5,561,498).

Regarding claim 4, Lee et al. and Chen et al. fail to disclose a method wherein said specific points are partially concentrated on a central portion of entire image for

enhancing detecting efficiency of the central portion of entire image. However, the limitations are well known in the art as taught by Sekine.

In the same field of endeavor, Sekine teaches a method for tracing the moving object within the center of the distance measuring frame (see Fig. 3d; col. 9, lines 45-65). Sekine also teaches that the movement vector is computed with more weighting value inside the center and less for the outside of the frame (col. 9, lines 55-60). In light of the teaching from Sekine, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the motion detection method taught by Lee et al. and Chen et al. by selecting pixels within the central part of the image plane to discriminate the movement of an object to be photographed from the movement of a camera so that the image plane can be obtained in a natural state with discrimination always correctly made between a moving object and a stationary object (col. 2, lines 46-53).

Regarding claim 14, the limitations in claim 14 can be found in claim 4.

6. Claims 8 and 18 are rejected under 35 U.S.C. 103(e) as being unpatentable over Lee et al. in view of Chen et al. and further in view of Hansen et al. (US-6,081,606).

Regarding claim 8, Lee et al. and Chen et al. fail to disclose that the sequential step comprises taking photos, taking a motion picture, sounding an alarm, or flashing a

LED light to warn a system operator or a guard. However, the limitations are well known in the art as taught by Hansen.

In the same field of endeavor, Hansen teaches an apparatus and method for identifying a direction of motion within a scene (col. 2, lines 13-32). Hansen also teaches that an alarm should be generated based upon the motion information (col. 8, lines 40-43). In light of the teaching from Hansen, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the motion detection method taught by Lee et al. and Chen et al. by warning a photographer based upon motion information. The modification thus provides appropriate warnings to the camera's user according to the motion information (col. 2, lines 35-40).

Regarding claim 18, the limitations in claim 18 can be found in claim 8.

7. Claims 9 and 19 are rejected under 35 U.S.C. 103(e) as being unpatentable over Lee et al. in view of Chen et al. and further in view of Justiss et al. (US-6,160,586).

Regarding claim 9, Lee et al. and Chen et al. fails to further teach the steps of: setting a parameter F equal to 1 when the object of said real-time image is determined to be in motion; and setting said parameter F equal to 0 when the object of said real-time image is determined to be motionless. However, the limitations are well known in the art as taught by Justiss et al.

In the same field of endeavor, Justiss et al. teach the method for detecting frames of video which are found to contain motion including steps of: setting a parameter F equal to 1 (374, Fig. 3B) when the object of said real-time image is determined to be in motion (sufficient motion 372, Fig 3B); and setting said parameter F equal to 0 (376, Fig. 3B) when the object of said real-time image is determined to be motionless (no motion 372, Fig 3B). In light of the teaching from Justiss et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the "one field flag" taught by Justiss in order to provide higher quality images both with high motion content and with low motion content (col. 2, lines 62-67).

Regarding claim 19, see the rejection on claim 9 above.

Allowable Subject Matter

8. Claims 10 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 10 and 20 the following is a statement of reason for the indication of allowance: the prior art made of record and considered pertinent to the applicant's disclosure does not disclose nor fairly suggest the method of claim 9 further in combination with: **checking said parameter F; performing sequentially the**

motion detection steps when said parameter F is equal to 0; and stopping motion detection steps for a predetermined time when said parameter F is equal to 1 and resetting said parameter F equal to 0 to continue the motion detection steps.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a) Sezan et al. (US-5,682,205) disclose the adaptive global-motion compensated de-interlacing of sequential video field with post processing.

b) Weckenbrock et al. (US-5,267,038) disclose motion detection for video including that obtained from film.

c) Marques et al. (US-6,130,964) disclose image segmentation and object tracking method and corresponding system.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 703-305-8143. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's primary's, NGOC YEN VU can be reached on 703-305-4946. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL
10/25/04

NGOC-YEN VU
PRIMARY EXAMINER